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RESEARCH AND DEVELOPMENT**

**No. 109**

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WORLDWIDE AFFAIRS

TELECOMMUNICATIONS, POSTAL SERVICES BETWEEN EGYPT-ISRAEL TO BEGIN

TA200905 Jerusalem POST in English 20 Jan 80 p 1 TA

[Article by Benny Morris]

[Text] Telecommunications and postal services between Israel and Egypt will begin operating one week from today, a Communications Ministry spokesman announced last night.

An agreement to this effect was reached when Communications Minister Yitzhaq Moda'i visited Cairo last week. Gid'on Lev, director-general of the ministry, put the finishing touches to the agreement in Cairo on Friday.

The postal links will cover all the services currently operating in Israel, including air and sea mail, "express" letters and packages up to 15 kilos. There will be both regular and urgent telegram facilities but no "night-letters" as Egypt lacks such a service.

Airmail letters to Egypt will cost the same as those to most European countries, the spokesman said.

From next Sunday, Israelis will also be able to telephone Egypt on two available lines through the international operator at "18." Egypt has no direct dialing system with any country, explained the spokesman. But the introduction of direct dialing with Israel will be speeded up if the Egyptians agree to purchase the Sinai communications network offered to them by Lev on Friday.

Telephone, telegraph and telex services will be operative 24 hours a day, the spokesman said.

On Wednesday both countries will inform the Universal Postal Union and the International Telecommunications Union of the new services.

CSO: 5500



BRIEFS

'TASS' DIRECTOR MEETS INDIRA GANDHI--Delhi, 9 Feb, TASS--India's Prime Minister Indira Gandhi today received TASS Director General Sergey Losev now here at the invitation of the United News of India. During his stay in India Sergey Losev had a meeting with India's Minister for External Affairs Narasimha Rao, Minister of Information and Radiobroadcasting Vasant Sathe, top officials of Indian news agencies. In the course of the meetings and conversations the sides discussed questions of expansion of cooperation in the sphere of the exchange of information between the two countries. [Text] [LD091639 Moscow TASS in English 1629 GMT 9 Feb 80 LD]

PAKISTAN-ROMANIA SIGN--Pakistan and Romania signed in Islamabad 9 February a protocol providing for cooperation in the economic, technical, scientific and agricultural fields. The protocol was concluded at the end of the 6-day deliberations of the sixth session of the Pakistan-Romanian joint governmental commission for economic, technical and scientific cooperation. [Karachi Domestic Service in English 1700 GMT 9 Feb 80 BK]

IRAQ, MALI SIGN AGREEMENT--Baghdad, 11 Feb--Iraq and Mali today signed an agreement for information and cultural cooperation. The agreement was signed for Iraq by Culture and Information Minister Latif Nasif Jasim, while Alpha Oumar Konare, Malian minister of sports, arts and culture, signed for Mali. The agreement provides for the establishment of cooperative relations between INA and the radio and television corporation and similar establishments in Mali. [Excerpts] [JN110955 Baghdad INA in Arabic 0945 GMT 11 Feb 80 JN]

BULGARIA-FRENCH ECONOMIC COOPERATION--Sofia, Jan 19 (BTA)--Agreements for trade and economic cooperation in communication equipment and for delivering an international automatic telephone exchange were signed here between the Bulgarian foreign trade organizations Izotimpex and Elektroimpex and the French firm Thomson-CSF-Telefon. [Excerpt] [Sofia BTA in English 1437 GMT 19 Jan 80 AU]



KENYA-LIBYA NEWS AGENCY ACCORD--The Kenya and Libyan news agencies today signed a 1-year agreement under which the two national agencies will regularly exchange news items with a view to promoting better understanding between them. Under the agreement the two agencies will exchange news items in English or French for distribution to the mass media in their respective countries. The agencies also agreed to exchange visits and information matters which might improve services, including technical inventions in the field of the telecommunications system. [Excerpt] [LD080408 Nairobi Domestic Service in English 1800 GMT 7 Feb 80 LD]

CSO: 5500

## INTER-ASIAN AFFAIRS

### BRIEFS

ANTARA LINK WITH PHILIPPINES--Jakarta, 9 Feb (ANTARA)--The inauguration of a new direct and regular satellite communication link between the Philippine News Agency (PNA) in Manila and Antara Jakarta took place on 8 February. Opening the satellite communication link from Jakarta the General Manager of Antara, Mr August Marpaung emphasized that the improved relationship between PNA and Antara had its special meaning, because both news agencies form a bridge between the two countries in the framework of Asean and international cooperation. Mr Marpaung's message was contained in a telexgram to the director and chief editor of PNA, Mr Lorenzo Cruz. The four Asean news agencies (PNA, Bernama, Thai News agency and Antara) in their meeting in Manila July last year decided to give priority to the enhancement and improvement of news exchange between the agencies in the region. Of the five Asean nations only Singapore does not have a national news agency. [Jakarta ANTARA in English 0748 GMT 9 Feb 80 BK]

# CONFERENCE ON DOMESTIC SATELLITE PLANS MEETS IN PERTH

## Premier's Preconference Remarks

Perth THE WEST AUSTRALIAN in English 4 Dec 79, Suppl., p 10

[Text]

**The State Government is setting up a high-level advisory committee to ensure that Western Australia's needs are met when the Federal Government goes ahead with its plan to establish a national communication satellite system.**

The Premier, Sir Charles Court, said this week that amongst the committee's most important functions would be the receipt of submissions from community organisations and individuals.

"The proposed satellite system could be of immense value to WA and particularly to communities and development projects in the North-West and remote outback areas," the Premier said.

"Telephone and possibly television links, rapid communications between field workers in remote areas and their management bases, increased educational opportunities and improved cyclone forecasting are just a few of the many advantages that could flow from the system.

"The Government is determined to do all in its power to ensure that the special interests of WA are not overshadowed by other interests, including the complexities of involvement with space research ventures overseas.

"To achieve this it is essential to establish, as early as possible, machinery to respond to—and indeed to initiate—developments in the Satellite Project Office to be set up by the Commonwealth as its organising and liaison body.

"We have already noted the strong interest in the satellite proposal among outback people which was expressed during the Northern Australia Development Conference in Broome earlier this month.

"There was no mistaking the concern of these people to have their views heard during the policy planning process.

"Further valuable information will come from a major three-day conference held by the University of WA extension service in Perth starting today.

"Satellite experts from the U.S., U.K., Europe and Canada, as well as from Australia,

will attend this conference, which is open to the public and will provide an excellent source of material for the new advisory committee's work."

The Premier said that State Cabinet had approved a submission by the Deputy Premier and Minister for the North-west, Mr O'Neill, for an allocation of funds this financial year to establish the advisory committee.

The terms of reference of the committee were:

- To carry out and co-ordinate liaison with the Satellite Project Office.

- To ensure that the requirements and interests of WA communities and developments, particularly in remote areas and the North-West, were fully appreciated in deliberations and decision-making on satellite and ground-based systems.

## Submissions

- To receive submissions from departmental and other bodies.

- To co-ordinate and oversee the preparation of a definitive document on the State's requirements and interests, to be made available to the public.

• To keep the State Government informed of significant developments and provide advice on request.

There would be five other members, of whom two had so far been selected—Dr. Brian O'Brien, former State Director of Conservation and Environment, and Dr L. Holman, of the State Medical Department.

The other three members would be a representative of the television and radio industry, a representative of mining and other developmental interests, and a representative of the State's remote communities.

The Premier said that other members might be co-opted as the need arose, but the Government's intention was to make the committee a small but strong and representative group.

Mr Hamilton's knowledge and experience of the needs of remote areas would be invaluable.

Dr O'Brien also had extensive knowledge of the State's remote

areas. In addition, from 1958 to 1971 he had worked on space satellites, including launches, design and construction, data reception and analysis, and ground stations.

## Recognised

"Dr O'Brien has been recognised internationally for this work," the Premier said.

"He is the only Australian to have been awarded the medal for Exceptional Scientific Achievement by the Aeronautics and Space Administration.

"His seven-year term as Director of Conservation and Environment in this State has given him an extensive knowledge of both State and Federal Government procedures, personnel and organisations."

Sir Charles said that both commercial television and radio organisations and the ABC would have a close interest in the policies that were to be formulated for the proposed satellite system.

The ABC would have a voice at the Federal level but it was important to include a senior representative of the WA electronic media on the advisory committee.

It was expected that the committee would have a life of three years.

A working party would be established to assist the committee. Its members would include officers of State Government departments, technical representatives, media representatives, a consultant and others co-opted as necessary.

"We believe this is the most effective practical way of being kept informed of developments within the project office to be established by the Commonwealth and at the same time make sure that WA's voice is heard strongly in the preparation of policy advice to the Federal Government," Sir Charles said.

"The needs of remote areas that could be

met by a communications satellite system are in many cases quite different from the needs of the cities, which are already much better served for communications.

"The satellite system holds out the promise of a major improvement in the quality of life for those living in isolated regions.

"These people contribute to Australia's welfare out of all proportion to their numbers, but until the advent of space-age technology at prices the nation can afford, they have been cut off from many of the benefits which people in the heavily-populated areas are able to take for granted.

"It would be unforgivable if, for lack of adequate organisation, their needs were to be overlooked at the national level.

"It is to ensure that this does not happen that the State Government has taken this rapid action."

## Communications Minister's Speech

Sydney THE SYDNEY MORNING HERALD in English 5 Dec 79 p 2

[Text]

PERTH. — Australian industry can play a large part in building the ground systems for the country's proposed domestic satellite system, and this should stimulate employment, the Minister for Post and Telecommunications, Mr Staley, said yesterday.

An official estimate that there would probably be about 25,000 small earth systems was quite modest; there might be as many as hundreds of thousands.

Mr Staley was giving the opening address at the Australian

communications satellite conference which began in Perth yesterday.

The Government planned to be extremely chauvinistic about building the system: "We want jobs in Australia. I don't believe we'll be in a position to manufacture the bird but we can play a major part in the development of the earth system," he said.

"People who regard a communications satellite as a job destroyer only demonstrate the inadequacy of their thinking," he said.

"Telecom plans to modestly increase their staff over the next few years and I don't see anything happening to change that."



"The way to create trouble with new technology is to refuse to use it."

The Government announced in October it would go ahead with the development of a domestic communications satellite system.

Mr Staley said there would be many new jobs created by the activities of users of the satellite.

The ABC, Telecom and commercial broadcasters would obviously be major users; regional commercial broadcasters should consider grouping themselves into consortiums to serve remote areas.

"We must certainly look at the role of basic telephone services in the bush, but we have to set quality against cost."

#### Address by Telecom Engineer

Perth THE WEST AUSTRALIAN in English 5 Dec 79 p 20

[Text] A five-year programme to expand WA's broad-band network was announced yesterday by Telecom's superintending engineer of transmission planning, Mr N. Crane.

He said that:

- A new high-capacity system was needed between Northam and Norseman by Christmas in 1983 to provide the first stage in relieving pressure on the present east-west microwave system. The second stage from Norseman to Ceduna was needed by 1985.

- The system linking Port Hedland, Broome and Derby would be equipped with a microwave radio system by the end of 1982.

- The Derby-Wyndham link would have a microwave radio system by the end of 1983.

Mr Crane was addressing about 200 delegates at the Australian communications satellite conference at the University of WA.

#### SOLAR CELLS

He said that the Port

Hedland-Wyndham route would be equipped with solar-cell equipment suitable for systems of up to about 1200 circuits.

Spur-line systems for mining projects in the Kimberleys and beyond Leonora to Leinster and Yeelirrie were being considered.

By 1985 the Perth-Eastern States broad-band capacity would be 41 supergroups, each containing 60 telephone circuits, with a growth rate of about four supergroups a year.

Mr Crane said that telephone systems dominated Australia's national telecommunications service.

Television relay also had a strong influence because each television relay occupied the equivalent of 600 or more telephone circuits.

The network was growing so big that in 1979-80 Telecom would spend about \$750 million to meet its service needs.

Mr Crane said that in June this year Australia had about 4.36 million automatic and 0.09 million manual services.

The target was 10,000 manual services in June 1985 and full automation by 1988.

Telecom had decided to introduce a computer-controlled telephone switching system called AXE. The first installations would be made in the early 1980s and computer-controlled exchanges would dominate the local network by the year 2000.

#### INCREASE

Mr Crane said that trunk traffic in Australia had increased at an average of 12 per cent a year during the past 10 years.

About 85 per cent of the circuits in the Telecom trunk network were now carried over broad-band systems. The systems also provided a significant proportion of the longer metropolitan circuits, representing an investment of more than \$300 million so far.

The next major phase planned for expanding Australia's television coverage was the remote-area programme.

This was based on the establishment in 1978-80 and 1980-81 of 43 television earth stations that would only receive. These would be one translator and 12 transmitters on relay routes on earth.

Another eight earth stations, nine translators and three transmitters were tentatively programmed for 1981-82.

## Consumers' Needs Discussed

Sydney THE SYDNEY MORNING HERALD in English 6 Dec 79 p 2

[Report from "a Special Correspondent"]

[Text] PERTH. — Safeguards will be needed to ensure that the bigger media groups cannot use a domestic satellite to dominate regional television and radio, a conference on a communications satellite was told yesterday.

Mr Kjell Linder, a consultant to the Northern Territory Administration, said it was essential that the local media reflected their own community and did not have a mere repetition of capital city programs.

"The facilities of the satellite should not be used to allow capital city media organisations cheap access to circuits which will enable them to replace local radio and television stations and even newspapers," he said.

Mr Linder also said that improved telecommunications would be an important "catalyst to development" in the Northern Territory.

The three-day conference at the University of WA, concentrated yesterday on the needs of satellite users.

Speakers representing such groups as the Country Women's Association, the mining industry, police, libraries,

meteorologists, emergency services and the computer industry spoke on a wide range of possible uses for a domestic satellite.

Mr M. Ford, representing the WA Chamber of Mines, said that a communications satellite could ease isolation and help stabilise remote mining communities.

### Enormous benefits expected

"This would be a great help to individuals within the community and the benefits would flow on to the whole of Australia," he said.

Mr Tony Tate, speaking on behalf of offshore users, said the benefits would be enormous if the satellite provided economic means of communication.

"It would allow rapid transfer of data from computers based on offshore structures to similar onshore facilities," he said.

"It would also provide a reliable all weather telex telephone and data link between a shore base and an offshore platform."

## More Details on Consumer Needs

Perth THE WEST AUSTRALIAN in English 6 Dec 79 p 63

[Text] The Bureau of Meteorology, a big potential user of a national satellite system, wanted a multi-purpose satellite, Mr L. Broadbridge told the Australian communications conference yesterday.

He said it should have meteorological imaging, data collection and disseminating capability as well as normal communications and television relay facilities.

Mr Broadbridge, supervising meteorologist at the regional meteorological bureau in Perth, said that Australia was using data from the Japanese geo-stationary

GMS satellite over the Indian Ocean for a "very low fee."

But it was becoming increasingly likely that Japan would ask for substantially bigger contri-

butions from Australia and other Asian countries after it launched its second satellite in 1985.

It might be better for Australia to invest in a domestic satellite.

In the last cyclone season, when the bureau asked for special observations on 14 occasions, the GMS could provide them on only seven days because of commitments in Japan.

#### LONG NOTICE

In addition, 12 to 24 hours' notice had to be given before special observations could be obtained.

An emergency could develop in a much shorter time.

Mr A. Tate, a meteorologist and manager of Oceanroutes (Australia) Pty Ltd, said in a joint paper with Dr R. K. Steedman, of R. K. Steedman and Associates, that

satellites could give reliable, all-weather communications to land-based stations and offshore platforms.

But Australia was making very little use of this facility.

Eight data-collection buoys off the WA coast could give early warning of the development of severe weather as well as an improved base for tracking tropical cyclones.

#### NT VIEW

Mr K. Linder, an adviser on cross-cultural relations to the Northern Territory Government, said that a domestic satellite would help relieve the isolation and improve educational opportunities for Aboriginal communities in the NT.

No broadcasting service was ever remotely relevant to Aborigines' needs and aspirations, though they made up 26 per cent of the NT population.

#### MINE TOWNS

Mr M. Ford, an industrial psychologist with Mt Newman Mining Co, said on behalf of the WA Chamber of Mines that WA's mining industry was looking to satellite communications to help normalise life-styles in isolated communities.

In the past 12 years, single-industry towns had sprung up, with a big proportion of affluent, single young people, mainly males.

Quicker and cheaper telephone services would bring people in isolated mining towns into closer contact with friends and relatives elsewhere.

Improved television would reduce their sense of separation from the rest of the world.

Mrs J. Foulkes-Taylor, president of the Isolated Parents' Children's Asso-

ciation, said that the Government should be planning satellite educational programmes now.

The WA president of the Country Women's Association, Mrs I. Hooper, said the CWA was mainly concerned with the improved community welfare that should follow the introduction of a satellite communications service.

The CWA put the highest priority on 24-hour telephone services and universal television was a close second.

Sgt R. O'Grady, a member of the NSW police communications branch, said that public-safety and law-enforcement agencies had a high claim on satellite use.

An efficient national communications network was essential for both law enforcement and disaster relief.

#### Television Official's Remarks

Perth THE WEST AUSTRALIAN in English 7 Dec 79 p 17

[Text.] Television programmes will be sent by satellite to receiving stations in remote parts of Western Australia next year, according to the ABC's director of corporate affairs, Mr John Hartley.

He said that Perth ABC programmes would be transmitted from the OTC station at Carnarvon and beamed to such locations as Exmouth and Halls Creek.

Mr Hartley told the Australian communications satellite conference at the University of WA that this would be part of a Federal Government programme to provide about 50 television reception stations in remote parts of Australia within the next two to three years.

Twenty of the stations would be in WA. The

signal servicing remote parts of the eastern time zone would be sent from Moree in NSW.

"In a country with the size and population of Australia the present system is only just adequate for minimal broadcasting purposes," Mr Hartley said.

"In some cases it is inadequate."

Mr Hartley said it was in radio broadcasting that the most marked improvement from the use of a satellite could be foreseen, particularly in remote areas.

Earth stations located

beside television transmitters could receive radio and TV simultaneously by satellite.

If radio transmitters were provided at the sites, the broadcasts would reach 98 per cent of the Australian population.

"Each earth station would be capable of receiving all the ABC's radio programmes, including the FM stereo service," he said.

Mr Hartley said that the first remote stations in WA would be set up at Broome, Derby and Exmouth in the second part of next year.

## West Australia's Needs

Perth THE WEST AUSTRALIAN in English 11 Dec 79 p 10

[Text]

Planning for Australia's satellite communications system must aim to rectify the fact that people in remote areas are deprived of many of the services which city people take for granted, Kimberley MIA, Alan Ridge, said last week.

Addressing a session of the three-day conference at the University of Western Australia on the proposed satellite system, Mr Ridge said the State Government was determined to see that Western Australia's needs were properly provided for in the planning of the national satellite communications system.

It had acted quickly to set up a high-level advisory committee on the project.

One of the committee's most important functions would be to receive submissions from community organisations and individuals on how they hope to see the satellite system used.

Mr Ridge said it was significant that the chairman of the State advisory committee would be the director of the Office of the North-West, Mr Roy Hamilton. Mr Hamilton had been investigating possible applications of satellite technology in his region for a long time.

No development was being more eagerly awaited by Kimberley people than the introduction of satellite telecommunications services, especially television.



## ELECTRONIC PHONE SYSTEM PLANNED

Dacca THE BANGADESH OBSERVER in English 17 Jan 80 p 1

[Text] Dacca telephone system with nine automatic exchanges and 42,647 working telephone connections has now been developed into a multi-exchange telephone system. This is the first of its kind in the country.

A survey conducted in the city revealed that the performance standard in Dacca telephone system is now seven times better since a vigorous drive launched in January 1974. During that time, there were 205 faults per 100 telephones per month and in November last there had been 33 faults per 100 telephones. In January, 74 there were 50,000 faults in 25,000 telephones and in November last 18,000 faults in 42,647 telephones per month. However, experts observed that the percentage of faults of 33 per 100 telephones per month was still quite a high figure of faults in telephone system.

Dacca telephone system has now nine automatic exchange working in different areas interconnected with each other through junction lines. The equipped capacity of these nine exchanges is estimated at 49,000 lines while there are 42,647 working telephone connections in the city now. In addition to these lines, there are now 454 PBXs with 9280 extensions under Dacca multi-exchange.

Dacca telephone system has very old telephone sets whose life have passed long before and these are causing wrong dial pulses in the exchange giving wrong numbers. Moreover, these sets cause noise during conversations. More than 6102 telephone sets need immediate replacement. Most of the telephone sets imported from India and East Germany and provided to the subscribers immediately after liberation of the country are giving constant troubles. These sets are now being replaced by telephone sets manufactured by Tongi Telephone Silpa Sangatha.

In the old part of the city, many under ground cables have gone faulty due to ageing. A scheme is now under preparation for drawing aerial cables in those areas.

In the new city area, roads have been expanded and as a result many telephone cables have gone under the main roads and it has now become difficult to repair those cables. Experts suggested to lay new cables to remove frequent faults in telephone lines.

Absence of requisite number of cable fault detectors is now causing frequent faults in the subscribers' telephone sets. There are only two cable fault detectors for the entire Dacca telephone system now. Whenever a cable fault is detected in more than two places at a time, which is more common, the repair is to be made in turn which causes considerable delay in restoration of normal functioning of the telephone connections.

To improve further the Dacca telephone system is planning to introduce electronic exchange either in analog or in digital form. Decision regarding this is expected soon.

CSC: 5500

## INDIAN COMMUNICATIONS MINISTER ON REVIVING SAMACHAR

OW101520 Hong Kong AFP in English 1345 GMT 10 Feb 80 OW

[Text] New Delhi, 10 Feb (AFP)--The new Indian Government of Prime Minister Mrs Indira Gandhi has indicated it may revive Samachar, the official news agency that forcibly merged the country's four independent wire services during her emergency rule.

At the same time, the government has pledged to respect freedom of the press and announced plans to promote the development of the non-aligned news pool as part of a wider effort to strengthen the non-aligned movement itself.

In an interview with Agence France-Presse, Information Minister Vasant Sathe refused to rule out the possibility of bringing back Samachar because of what he termed the wasteful "multiplicity of weak agencies."

His comments came at a time of concern in some quarters that Prime Minister Gandhi, spurred partly by budgetary considerations and partly by politics, might take steps to streamline the agencies in what would amount to a consolidation of her power.

But Mr Sathe stressed that he opposed the use of force in all dealings with the press and expressed the desire to negotiate an arrangement whereby India's two Hindi-language news agencies might be merged into the two English-language services. All four are state subsidized.

Samachar, created in February 1976 to give the government strict control of news dissemination, was broken down into its constituent parts after Mrs Gandhi was swept out of office in a backlash against abuses of power during her 20-month emergency rule.

Mr Sathe said it was too early in the new administration to spell out a final decision, but indicated that he was giving the matter "deep thought."

Referring to current difficulties in maintaining a vehicle for dissemination of the non-aligned pool, Mr Sathe noted that creation of an official news agency would get around the independents' reluctance to handle pool material.

The government was committed by its foreign policy to expanding the pool, which distributes "development news" between third world countries to offset alleged distortions in coverage by the four major western news agencies, he said.

The current contract covering dissemination of pool dispatches through the Press Trust of India (PTI) expires on 31 March. Its directors have resisted the linkup on grounds that the pool publishes little but propaganda from official agencies, hurting the credibility of those that distribute the service.

CSO: 5500



INDIA

BRIEFS

SATELLITE GROUND STATION OPENED--The Chingleput earth station near Madras has come into operation. This is one of the two stations of the country to help long distance satellite communications. The other earth station at Delhi is likely to come into operation shortly. With the commissioning of the Chingleput earth station several remote locations at Kavaratti, Minicoy, Port Blair, Car Nicobar, Leh and Aijal will be connected to the national mainstream through the American satellite, Intelsat. [Text]  
[BK091452 Delhi Domestic Service in English 1230 GMT 9 Feb 80 BK]

CSO: 5500

## INDONESIA

### BRIEFS

**NEW TRANSMITTERS**--Information Minister Ali Murtopo told a working meeting with Parliamentary Commission I that the capacity of the international service of RRI [Radio Republik Indonesia] will be increased in the near future. For this purpose a 30 million franc loan from France will be used to buy two 250 kw transmitters. The contract is expected to be finalized by the end of March. [Jakarta Domestic Service in Indonesian 0700 GMT 5 Feb 80 BK]

**TV RELAY STATIONS**--Defense and Security Minister General Jusuf in Meulaboh on 31 January handed over three television relay stations to TVRI [Televisi Republik Indonesia] Director Supomo. The stations are located in Meulaboh in west Aceh, Takingeun in central Aceh and Kutacane in north Aceh. Each of the 1-kw relay stations can cover an area within a 40-km radius. [Jakarta Domestic Service in Indonesia 1500 GMT 31 Jan 80 BK]

CS0: 5500

KPRC CIRCULAR ON RESTORING POST, TELECOMMUNICATIONS SERVICE

BK261448 Phnom Penh Domestic Service in Cambodian 1200 GMT 22 Jan 80 BK

[17 January "KPRC Circular to the Central Post and Telecommunications Service and to All Municipal and Provincial People's Revolutionary Committees on Establishing Post and Telecommunications Offices in Order To Restore in a Rapid, Timely Manner the Post and Telecommunications Service From Central to Grassroots Levels Both at Home and Abroad"]

[Text] The KPRC has issued the following circular to the Ministry of Communications and Posts and to all municipal and provincial people's revolutionary committees on a number of tasks to be urgently carried out as part of the reorganization of the telecommunications and postal service.

1. In provinces and districts: Post and telecommunications service personnel should be recruited at provincial and district levels. Politically and culturally capable cadres as well as experts should be recruited to run all the offices. Postal service personnel from the old regimes who are technically capable and ideologically qualified may be recruited to handle specialized services. The recruitment of personnel for the post and telecommunications service should be made with utmost care as to the candidates' political standing as part of the security necessary for the secrecy of documents and messages belonging to all echelons of the state and to the citizens.
2. The availability of post and telecommunications offices from the former society should be assessed. Old equipment that can be reused should be salvaged, while damaged equipment should be repaired in order to urgently return each office to normal operations so that contacts among the provinces, cities, districts and the central service can be made.
3. Use all national means of transportation available to carry mail and set up mail services, via trucks or other vehicles, between the provinces and the central service.
4. Where Vietnamese experts are available, the post and telecommunications service should give them appropriate cooperation in training more technical and professional cadres to take care of the service. When there are announcements about recruiting students for the central post and telecommunications training school or for study abroad, the number of recruits should be made as specified in the announcements.

5. The provincial and municipal people's revolutionary committees should provide facilities for the postal service in the regions and districts concerned in collaboration with the central post and telecommunications service in order to reestablish our service on a nationwide scale.

This is a most urgent, necessary task. Therefore, the Ministry of Communications and Posts and the provincial and municipal committees should insure that each province can rapidly reopen its telecommunications and postal service. Should anything require clarification, the Ministry of Communications and Posts should be contacted for further information.

CSO: 5500



## PAKISTAN

### BRIEFS

**NEW TRANSMITTER**--The first highpower transmitter designed and fabricated by engineers of Pakistan Broadcasting Corporation was unveiled by information and broadcasting Minister Maj Gen Retired Shahid Hamid near Rawalpindi 9 February. The 100-kilowatt medium frequency transmitter will be installed at Khairpur in Sind. Its indigenous fabrication at a cost of over 7 million rupees has resulted in a savings of over 5 million rupees. [Karachi Domestic Service in English 1700 GMT 80 BK]

CSO: 5500

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

SHANGHAI ELECTRONIC INDUSTRY--Shanghai, 9 Jan--Shanghai's electronic industry recently trial-produced a 48-channel, 12-inch, black-and-white television set, which meets national technical standards. The Shanghai No 3 Radio Plant recently began production of a model 3PL3 radio receiver-recorder, which will soon appear in the market. The Shanghai No 101 Plant recently produced a new type of microwave equipment for relaying color television transmissions. This new relay equipment will soon be made available to television stations throughout the country. [OW111351 Beijing XINHUA Domestic Service in Chinese 0323 GMT 9 Jan 80 OW]

GUANGDONG RADIO AERIAL TECHNOLOGY--The scientific research departments concerned in Guangdong have gained an important breakthrough in producing a small size and high-efficiency radio transmission aerial. Recently, the Guangdong Science Committee held a conference in Guangzhou to reaffirm this scientific research achievement. It was held that the achievement has reached advanced domestic levels. With this technology, the height of the aerial can be greatly reduced, and investment in the equipment for transmission is lowered. [Guangzhou Guangdong Provincial Service in Mandarin 2330 GMT 15 Jan 80 HK]

CSO: 5500

## DEVELOPMENT OF TELEVISION IN BULGARIA SURVEYED

### Development of Bulgarian Television

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 10, 1979 pp 2-4

[Article by Engineer I. Semerdzhiev, director of Radio Stations and Television under the Council of Ministers]

[Text] The following decision was passed in the course of the discussions of the hird Five-Year Plan for the development of the country by the Seventh BCP Congress: "During the five-year plan a television transmitter shall be built and commissioned, and the technical base of radio broadcasting shall be improved."

While the corresponding state organs were studying possibilities for organizing television transmission in Bulgaria, the enthusiastic collective of the Machine-Electrical Engineering Institute developed, under the guidance of Prof Sazdo Ivanov, television transmission and studio equipment with which the initial experimental telecasts were started on 1 May 1945. This contributed to the popularization of television in the country and the training of cadres for the development of the future television network.

With a view to implementing the decisions of the Seventh BCP Congress, on 22 January 1959 the Ministry of Transportation and Communications assigned to its design organization the elaboration of a general plan for the development of a television network and of ultrashort frequencies--FM radio broadcasting in Bulgaria.

As early as 1956 preliminary studies were undertaken by the Radio Administration and the Scientific Research Communications Institute on the formulation of a plan for the development of television, to be linked with the radio relay network. Some of the main features were earmarked on the basis of this plan and projects for their implementation were drafted. The general plan for the development of the television network and of UHF-FM radio broadcasting was experimentally refined and updated.

Because of the earlier installation of radio relay cables in Bulgaria, which began to operate as of 18 January 1956, preliminary preparations were made for the installation of television facilities. Several radio relay stations were built, among which the Television Tower in Freedom Park. On 7 November 1959, in honor of the 42nd anniversary of the Great October Revolution, the first television programs were broadcast with the equipment imported from Britain and installed in the television tower. It was thus that 20 years ago the Bulgarian professional television began its regular transmissions two to three times weekly, covering Sofia and Sofia Plain. The program lasted two-and-a-half hours and was received by 148 officially registered television sets.

The development of radio relay lines in our country contributed to the accelerated development of television, for whenever a relay station was built it was also planned in terms of television requirements. In January 1963 the first broad band radio relay Sofia-Bucharest-Moscow line was completed. The R 600 equipment was of Soviet manufacturing. This greatly improved television programming, for it was through this line that the first exchange of programs with the USSR was achieved; in May that same year Bulgaria joined the Intervision system. As a member, Bulgaria began to exchange programs with the other socialist countries as well. The construction of the most effective television center in our country, on Botev Peak, greatly contributed to the widening of areas with television coverage. Following the replacement of the 100 watt translator with a powerful television transmitter on 30 December 1965, good quality reception was ensured for the central parts of the country on both sides of the Balkan mountains. This led to an increase in the number of television receivers from 148 in 1959 to 185,248 at the end of 1965.

Along with the building of television transmitters, relay towers were built as well. The first were developed by Bulgarian specialists in the laboratories of the Radio Stations and Television Enterprise. Subsequently, their industrial manufacturing was taken over by the Industrial Repair Enterprise of the Ministry of Communications in Ruse, based on designs furnished by the Scientific Research Institute of Communications. In 1967 the broadband radio relay Sofia-St. Zagora-Burgas-Varna line was completed making possible two-way transmission of one black-and-white or color television channel and three radio channels. This supplied programs to the powerful television transmitter built above Slunchev Bryag, covering a large part of the Black Sea area.

Studio television and reporting facilities developed along with the development of the radio relay, television, transmission, and translation networks. Reports were broadcast from areas located in the vicinity of radio relay stations. This made it possible to extend the length of television programs which became daily and longer. The quality and variety of the programs improved.



A second international broadband radio relay line between Sofia and Belgrade was completed in 1968. It provided a direct connection with the Eurovision system. A spur from the Dragoman radio relay station sent television programs to the powerful television transmitter built above Kyustendil covering Southwestern Bulgaria.

Demand for television sets increased with the accelerated development of the television material and technical base. In 1956 the Voroshilov low-tension appliances plant undertook the development and production of the first Bulgarian television set model Opera-1 which, subsequently, was subjected to a number of improvements. In order to meet the country's needs for television sets they were imported from the other socialist countries, mainly the USSR. At the end of 1968 our country's population had over 621,000 television sets. A repair organization--Radio and Television Services--was created to ensure their maintenance. In 1972 the Sofia-Plovdiv-Istanbul international broadband line was commissioned. Through this line our country provided international transit connections between Europe and the Middle and Near East. In addition to carrying international television and radio programs, a connecting cable was strung to feed the television transmitter covering Kurdzhali Okrug.

The fourth Sofia-Athens international line was commissioned in June 1975. This gave our country the possibility to exchange television programs with all neighboring countries.

Bulgarian television opened branches in Plovdiv, Varna, Ruse, and Blagoevgrad which began regular transmissions.

Preparations were made for color programs as well. The first Bulgarian color program was telecast on 9 September 1972. The showing of color motion pictures was started at the beginning of 1973.

The opening of a second television channel was an important aspect in the development of the television system. It began its regular programming on 9 September 1975, three times weekly, for a total of 12 hours.

The first satellite communications station was also built in August 1975. The basic equipment was supplied from the USSR while the installation and the tuning were made by Soviet and Bulgarian specialists. On the eve of 1977 the first experimental transmissions from this station were made.

By 30 June 1979 the existing television transmitters and translators were transmitting on one television channel and beaming quality transmissions covering 85 percent of the country's population, a total of 72-75 hours weekly, 75 to 80 percent of which were in color. A second television channel is reaching 63 percent of the country's population 26 to 28 hours weekly, 70 to 75 percent in color.

By 30 June 1979 there were a total of 1.7 million television sets installed. According to statistical data viewers spent 1 hour and 50 minutes per day watching television.

The material and technical base of television so far developed makes it possible to provide far more transmission time, particularly on the second channel. This would considerably improve the effective use of transmission equipment.

According to long-term forecasts on the development of television during the Eighth Five-Year Plan and through 1990 transmissions on the first and second television channels will cover 99 percent of the population following the construction of new transmission and translation towers, radio relay lines, and the studio facilities of the Bulgarian television. A third television channel will be introduced as well. In the Ninth Five-Year Plan the three channels will cover 100 percent of the population and a fourth channel will be opened transmitting via satellite.

The development of television in Bulgaria is a manifestation of the party's concern for the steady upgrading of the cultural standard of our people, pursued steadfastly following the victory of the socialist revolution whose 35th anniversary is celebrated by the entire Bulgarian people.

#### Complex Radio and Television Center

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 10, 1979 p 4

[Article by Engineer I. Gavrailov]

[Text] The complex Kopitoto Radio and Television Center on Mount Vitosha is one of the most important links within the television and radio broadcasting system in the country in the ultrahigh frequency range. Its location in the Kopitoto area, after which it was named, was determined by the fact that it is consistent with the basic requirements, as the Kopitoto is in the center of the area to be serviced by the radio and television. Its elevation is sufficient and this greatly improves the quality of reception in the capital and in Sofia and Ternik okrugs. The area it must cover--directly and indirectly through relay stations whose center it will be--is the area surrounded by Ikhtimanska Sredna Gora, Plana, Vitosha, Golo Burdo, Zavalaska Planina, and the Balkan mountains, and the western border of the country.

The overall building of the complex will be in stages. The first stage will be concluded at the end of 1981, ensuring transmission of three color television and five stereophonic radio channels. The characteristic feature is that the first television channel will be transmitted on television channel 7 while the second and third will be in the decimeter

range, on channels 29 and 36, respectively. Immediately following the completion of the first stage transmission on the second channel, channel 12, beamed to Sofia, will be terminated.

In order to ensure the continuity of the programs reserve equipment will be installed and, if necessary, activated automatically. In the case of the transmitters this is achieved either through the existence of an identical transmitter or conversion, in the case of television transmitters, from the decimeter range to a multiplex system, i.e., the video and sound tracks are combined while the antennas are fed according to the "split feeding" system.

Modern transmitters will be installed in the transmission center. Their main unit will be the fully transistorized exciters. Furthermore, the exciters of the television transmitters work in the medium frequency range and it is mainly there that the necessary parameters will be defined. Then, through heterodyne they will convert to the beaming frequency, i.e., to channels 7, 29, and 36. The ultrahigh frequency transmitters have only two tubes needed for the denultimate and ultimate steps. The final steps of the decimeter television transmitters are on steam-cooled klystrons--one for the image and one for the sound.

The radio broadcasting ultrahigh frequency transmitters will operate in two frequency ranges: three in the 66-73 megahertz band and two in the 100-104 megahertz band. This marks the beginning of the development of a new frequency range in Bulgaria along with the 66-73 megahertz band used so far. The transmitters in both ranges, a total of 5, will use two antennas. In the first, the power will be fed to the antenna through a triplexer; a diplexer will be used for the second. The outlets of the two decimeter television transmitters which will also operate with one antenna, will be connected to the diplexer.

The horizontal emissions diagrams are similar. They are kidney-shaped, slightly broadened in a westerly direction, as required by the area to be covered. The vertical systems are also similar with properly selected radians and rounded zeroes [zapuleni nuli] which makes the distribution of the electromagnetic field along the individual tracks acceptable. As a result of this, in the case of Sofia the closest and most distant radio and television subscribers will benefit from the same reception signal. The interference areas are in the vicinity of the site itself and will not affect reception quality.

The radio and television programs will be transmitted from the studio through the tower in Freedom Park through radio relays.

The most difficult part of the designing was the requirement of a minimum deviation of the upper part of the antenna tower, caused by solar heat

and the wind force. It should not exceed  $0.5^{\circ}$  at a 150 meter height while a specific diameter could be exceeded for technological considerations.

The site is located in the immediate vicinity of the upper lift station on the Kopitoto in such a way as not to disturb the environment or hinder the access by hikers to the rocks characteristic of this part of Mount Vitosha.

5003

CSO: 5500

## NATIONAL COMPUTERIZED TELEX SYSTEM DESCRIBED

Warsaw PRZEGLAD TELEKOMUNIKACYJNY in Polish No 6, Jun 79 pp 174-178

[Article by Czeslaw Syc, Center for Technical Information Science and Data Processing of the District Postal and Telecommunications Laboratory, Warsaw: "The BIST System"]

[Text] The Base Computerized Information Telex System (abbreviated to BIST) was created at the initiative of Prof Dr Edward Kowalczyk, Minister of Communications. This system is presently being developed and implemented by the Technical Information Science and Data Processing Center of the District Postal and Telecommunications Laboratory in Warsaw.

The goal of this system is establishment of a base remote computerized information network, supported by a telex system and mini-computers (chiefly of Polish manufacture).

Taking into consideration the necessity of channeling information into those sectors of the national economy which are designated priority within the framework of economic maneuver, that is, to materials management, transport, housing construction, market supply, trade, as well as procurement and contracting of farm products, transportation-communications, and power engineering -- a system has been elaborated in the Ministry of Communications which makes it possible to utilize the presently existing telex network (with relatively small investment outlays on information science) for the requirements of automating information processes in management of the above-listed sectors of the nation's economy.

### Structure of the BIST System

In order to present a more detailed description of the BIST system, we shall examine on the one hand the structure of its network, and on the other hand its configuration.

Figure 1 presents the structure of the BIST system network. The configuration and basic functions of the system, at the sequential hierarchic levels, are determined unambiguously by the adopted principle of realization





Key to Figure 1 on preceding page:

- |                                |   |
|--------------------------------|---|
| 1. Base information system     | 4. Leased lines   |
| 2. International communication | 5. 50 baud telegraph channels, 200 baud telegraph channels (permanent links), multiple telegraph channels |
| 3. Synchronous transmission    | 6. Telegraph communications, automatic switched network   |
|                                | 7. Automatic telecommunications network   |
|                                | PAP. Polish Press Agency  |
|                                | WOG. Large Economic Units   |
|                                | ZJEDN. Associations   |
|                                | MIN. Ministries   |
- 

"from bottom to top." Utilization at specified levels of the national economy, taking into consideration this country's administrative division, can possess the following character:

at the central levels: central circular, remote data collection center, traffic control center, communications center for communications between central data banks, center for exchange of information with foreign countries;

at regional levels: regional data banks, control of communications with Warsaw base information network, control of transmission of message packets;

at voivodship levels: circular, data collection centers, traffic control centers, voivodship data banks, voivodship information centers.

The basic utilization functions of the BIST system can be described as follows:

automatic connection to any network user;

transmission and receiving of telex information at a rate of 50 bauds in code No 2;

direct communication with BIST system intelligent terminals with the aid of 50 baud switched circuits, permanent (leased) 200 baud circuits, multiplex telegraphy channels.

The present structure of the telex network is the lowest organized network structure of the BIST system. It is a digital network, fully automated in domestic service. This means that the user of this network can obtain almost immediately a connection with any other user. Receiving and transmission of information in the automatic telex network employs five-element code No 2 at a speed of up to 50 bauds, or

approximately 7 characters per second, that is, approximately 2000 characters (almost one typed page) in 5 minutes. Considering the fact that the present telex network encompasses the entire country, including all gminas, one can state without exaggeration that this is the most universal and far-reaching digital (computerized information) network.

The BIST system takes the telex network as a base component for information requirements. Equipping mini-computers with telegraphic adapters which make possible direct and automatic joint operation with the telex network, the foundation has been established for their utilization as message terminals, message concentrators, user terminals, and telex network intelligence terminals.

Toward this end a family of single-unit and block-assembly telegraphic adapters has been developed. In the latter case it is possible to hook a mini-computer into the telex network in a multichannel system, that is, in a system permitting simultaneous receiving or transmission from/to many users of this network. Information received by the mini-computer (hooked into the telex network) is checked for correctness of transmission and can be initially processed and subsequently stored on a suitable computer carrier, that is, on magnetic tape.

All these activities can take place automatically, without human intervention. Such a system totally eliminates the traditional mode of utilization of a telex network with employment of punched tape. Transmitted data will be secured against errors by employment of check-sums. When mini-computers are operating as telex system terminals, error protection is automatically provided by programming. Automatic telegraph exchanges handle channel switching processes in the telex network. All telex network terminal equipment, including mini-computers equipped with telegraphic adapters, are connected in at the user level of those exchanges.

#### BIST System Equipment and Terminals

A "family" of terminal equipment based on MERA 300 mini-computers has been developed. This equipment can perform the functions of terminals, user stations, telex network message concentrators, and can at the same time serve as intelligent terminals of large computers or can form among themselves mini-computer networks. This equipment is designated IT-300, as well as IT-301, IT-303, IT-305, or IT-306, depending on the utilized type of MERA 301, 303, 305 or 306 mini-computer.

The table contains a list of basic functions performed by intelligent terminals of the IT-300 family, as well as indicating the type of mini-computer utilized for each kind of terminal, plus data characterizing joint operation channels with the telex network. Figure 2 contains block diagrams defining the configuration of individual terminals.

# List of Basic Functions of BIST System Terminals

Nazwa systemu	1)	2)	3)	Uwagi 4)
IT-301	Realizacja procedury obsługi danych 5) Przebieg informacji o danych Obsługa i informacja o stanie i możliwościach systemu Realizacja procedury obsługi danych 8) Realizacja i obsługa możliwościach systemu Przebieg informacji w trybie obsługi danych Realizacja funkcji komunikacji wewnętrznej Wyświetlenie i drukowanie danych	MIERA 101 6) Adaptacja systemu MIERA 102 6) Adaptacja systemu MIERA 103 9) Realizacja obsługi danych	Wszystkie informacje o stanie i możliwościach systemu Realizacja procedury obsługi danych 7) Realizacja procedury obsługi danych 10) Realizacja procedury obsługi danych 13) Realizacja procedury obsługi danych 16)	
IT-302	Realizacja procedury obsługi danych 11) Realizacja i obsługa możliwościach systemu Przebieg informacji w trybie obsługi danych Realizacja funkcji komunikacji wewnętrznej Wyświetlenie i drukowanie danych	MIERA 104 12) Realizacja obsługi danych	Wszystkie informacje o stanie i możliwościach systemu Realizacja procedury obsługi danych 13)	
IT-303	Realizacja procedury obsługi danych 14) Realizacja i obsługa możliwościach systemu Przebieg informacji w trybie obsługi danych Realizacja funkcji komunikacji wewnętrznej Wyświetlenie i drukowanie danych	MIERA 105 15) Realizacja obsługi danych	Wszystkie informacje o stanie i możliwościach systemu Realizacja procedury obsługi danych 16)	

Key:

1. System designation
  2. Functions of system
  3. Equipment
  4. Remarks
5. Performance of teleprinter procedures, data preparation, message receiving and transmission with automatic error protection

Key to table on preceding page:

6. Telegraph adapter, and
  7. Single-channel telegraph I/O with telex line hookup capability at the automatic telegraph exchange user level or teleprinter connection
  8. Receiving of telex information, transmission and receiving of telex messages, transmission of information in circular mode, performance of message concentrator functions, joint operation with large electronic digital computer with aid of data transmission link
  9. Linear unit of telegraph adapters
  10. Four-channel telegraph I/O with simultaneous four telex line connection capability at automatic telegraph exchange user level
  11. Receiving of telex information, transmission and receiving of telex messages, transmission of information in circular mode, performance of message concentrator functions, performance of user terminal functions, dispersed bank forming capability, joint operation with large electronic digital computer with aid of data transmission link
  12. Linear block of telegraph adaptors
  13. Eight-channel telegraph I/O with capability of connecting eight telex lines simultaneously at the automatic telegraph exchange user level
  14. Receiving of telex information with simultaneous distribution, transmission and receiving of telex messages, transmission of information in circular mode, performance of message concentration functions, performance of user terminal functions, joint operation with large electronic digital computers or IT-064 terminals, capability of utilizing terminal as automatic user telegraph exchange
  15. Linear block, or
  16. 64-channel telegraph I/O with capability of simultaneous connection of 64 telex lines at the automatic telegraph exchange user level. There is a possibility of also hooking in inter-exchange, permanent or teleprinter circuits
-





Legend (to Figure 2 on preceding page): KBD -- direct access channel; KMP -- multiplexer channel; KAR -- arithmetic unit channel; PK-1 -- cassette memory; JS PDI -- disk memory control unit; JS ME -- screen monitor control unit; JS DZM -- printer control unit; JS DS11 -- transmission control unit; MPU -- MOM -- linear block multiplexer; TG<sub>u</sub> -- universal telegraph adapter, automatically establishing connection; D -- teleprinter; CT -- punched tape reader; DT -- tape punch; DZM -- mosaic printer; PD-9425 -- disk memory; BP -- interrupt unit; Kb -- 1024 bytes

Key:

- |                                  |                          |
|----------------------------------|--------------------------|
| 1. Operating memory              | 12. Record               |
| 2. Telex network                 | 13. Readout              |
| 3. MOMIK computer                | 14. Telex information    |
| 4. User telex lines              | 15. Circular information |
| 5. Linear block                  | 16. Message information  |
| 6. Input                         | 17. From/to computer or  |
| 7. Output                        | 18. Operator console     |
| 8. Control                       | 19. Integrated           |
| 9. Messages                      | 20. Set of control units |
| 10. Circulars                    | 21. Telex or telegraph   |
| 11. Telexes, messages, circulars | network                  |

---

The lowest-organized terminal of the IT-300 family is the IT-301 terminal, so-called DATATELEKS. This terminal permits simultaneous operation in telex mode on the one hand and in DATA mode on the other, that is, data preparation. From the user standpoint it replaces the terminal station (teleprinter) and data preparation station, as well as data transmission system.

The highest-organized terminal of the IT-300 family is the IT-306 terminal. It performs the functions of each lower-organized terminal of the IT-300 family and in addition permits simultaneous joint operation with the telex network with the aid of eight telegraph channels. The IT-306 terminal automatically permits receiving of telex information, receiving of messages which are appropriately formatted, as well as automatic transmission of telex messages in circular mode. All the above-mentioned stations can be connected to telex network automatic telegraph exchanges at the user level and can operate in code No 2 and with telegraph channels with a transmitting rate of up to 50 bauds.

#### BIST System IT-064 Terminal

If the user wishes to employ different kinds of telegraph circuits, for example, permanent, permitting operation in different codes and at rates up to 200 bauds, he can install an IT-064 terminal, the configuration of which is presented in Figure 3, while the functions are given in the table. While terminals of the IT-300 family have been built and operationally tested, the IT-064 terminal is currently in the design and model execution stage.

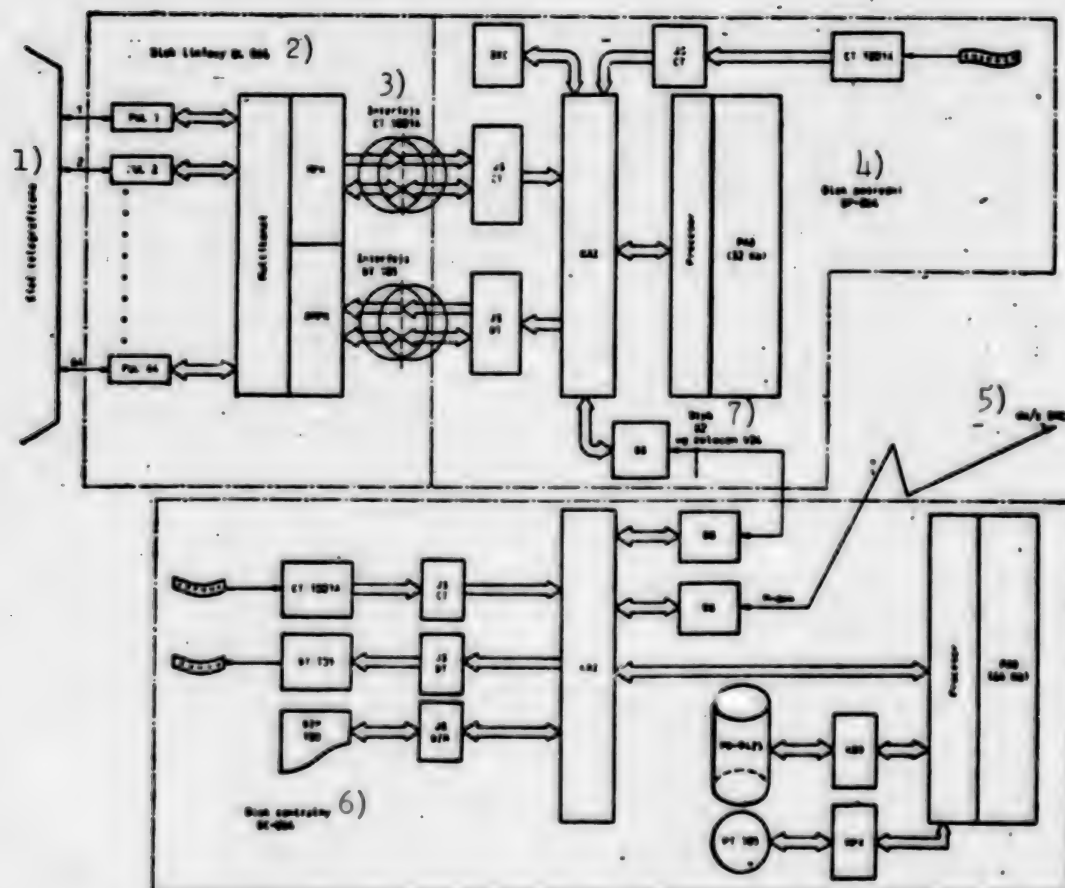


Figure 3. Block Diagram of IT-064 Terminal: PUL -- linear system; CT -- punched tape reader; DT -- tape punch; DZM -- mosaic printer; DS -- transmission control unit; JS CT -- tape reader control unit; JS DT -- tape punch control unit; JS DZM -- printer control unit; KAZ -- character channel; PT -- tape memory; PD -- disk memory; KBD -- direct access channel; MPZ -- multiplexer; DMPX -- demultiplexer; ZRC -- real time clock; Kb -- 1024 bytes

Key to Figure 3 on preceding page:

- |                      |  |
|----------------------|--|
| 1. Telegraph network | 4. Intermediate block                              |
| 2. Linear block      | 5. To/from electronic digital computer             |
| 3. Interface         | 6. Central unit                                    |
|                      | 7. Interfacing S2 according to recommendations V24 |
- 

The IT-064 terminal makes possible joint operation with the telex network simultaneously with 64 two-wire telegraph channels. This terminal can be connected to an automatic telegraph exchange at the user level or can work in joint operation with teleprinter units or other terminal equipment of this type connected locally to it. It can also work in joint operation with inter-exchange circuits, performing within this scope the functions of an automatic telex exchange.

All the above-enumerated capabilities of the IT-064 terminal will be implemented by means of special programs and microprograms, without the need for design or hardware changes in the terminal. Thus there exists great flexibility in adapting the terminal to different requirements and operating conditions. There will be a capability to expand the terminal with modules up to 8 units of 64 channels each. Just as the IT-306 terminal, the IT-064 terminal can perform functions of circular, receiving and transmission of messages and telex information. The terminal can be connected by data transmission links to a large computer as a terminal to that computer.

This terminal involves a totally different principle from terminals of the IT-300 family. Proceeding from such conditions as:

necessity of versatilization of software, adapting a teleinformation system to unanticipated hardware changes in information equipment available to the manufacturer;

achievement of the intended effect of versatilization by the possible utilization of suitable matching hardware;

flexibility in matching terminals to different network configurations;

necessity of operating in different codes, including code No 5;

securement of an appropriate degree of terminal reliability;

a substantial decrease in the cost of producing this terminal in relation to costs incurred with employing the configuration of the IT-300 family, for example;

it would seem that the solution presented in Figure 3 will be the most practical and at the same time the most long-range promising. This solution incorporates a three-level terminal structure. The first level

pertains to implementation of linear functions within the area of circuit servicing and circuit control required in procedures of receiving, transmitting, and making connections. The unit carrying out these functions is generally called a linear block or unit and is designated BL-064.

This unit is equipped with standard reader and punch interfaces and can essentially be hooked up to any type of mini-computer. In this case the latter performs the function of intermediate unit, permitting composition and decomposition of telegraph character into fragments in relation to the type of received code or character transmission rate. The intermediary unit is designated BP-064. This unit operates jointly with the BC-064 terminal block, based on a mini-computer of at least the same type as the MERA 400 or SM-3. The BP-064 and BC-064 units work jointly at the S2 contact according CCITT recommendations V24.

If we designate telegraphic signal  $S$  by components  $S_1$  and  $S_2$ , where component  $S_1$  will denote signal level, for example, current value or direction, while  $S_2$  will denote signal duration at level  $S_1$ , then signal  $S$  in  $i$  telegraph channel can be represented as ordered triple sequence

$$\langle i, S_1, S_2 \rangle.$$

A telegraphic signal transmitted to a telegraph channel or received from a telegraph channel can be represented as a series of triple sequences, each of which determines one fragment of that character

$$[\langle i, S_1^{\text{start}}, S_2^{\text{start}} \rangle \langle i, S_1^1, S_2^1 \rangle \langle \dots \langle i, S_1^k, S_2^k \rangle \langle i, S_1^{\text{stop}}, S_2^{\text{stop}} \rangle]$$

where:  $k \geq 1$  and is determined by the type of character and employed code in which the given character is represented;

$S_1^{\text{start}} ; S_2^{\text{start}}$  -- start components;

$S_1^{\text{stop}} ; S_2^{\text{stop}}$  -- stop components.

For example, we have the following for code No 2 and a character representing the letter a:

$$[\langle i, 0\text{mA}, 20\text{ms} \rangle \langle i, -40\text{mA}, 40\text{ms} \rangle \langle i, 0\text{mA}, 60\text{ms} \rangle \langle i, -40\text{mA}, 30\text{ms} \rangle]$$

In order to transmit from an IT-064 to a telegraph channel a telegraphic character, a in code No 2, for example, one must perform in the BP-064 decomposition of this character into telegraphic fragments which are correspondingly triple sequences. Then the two first appropriately encoded elements of each triple sequence is transmitted to the BL-064 at the moments designated by the third element of each preceding triple sequence, which determines the duration of the given signal. This time is counted in the BP-064 unit by a ZRC real-time clock for each telegraph channel. When a telegraphic character is received from  $i$  channel the procedure is the reverse, namely a character is to be composed of fragments which are



correspondingly put together and identified in the BP-064 unit.

$\langle i, S_1 \rangle$  pairs are obtained from the BL-064 unit, while component  $S_2$ , pertaining to time, is formed in BP-064 as the difference in times between the current and preceding change of state which occurred in the given  $i$  channel. Thus there occurs in the BP-064 unit composition or decomposition of a telegraphic character depending on whether we are dealing with receiving or transmission. Connected with this is appropriate cause-time diagram realization in the area of establishing connection.

Messages are composed in the BC-064 unit of characters received from the BP-064, or messages are sent character by character to the BP-064.

The IT-064 terminal performs all functions which are performed by terminals of the IT-300 family and in addition can be utilized as a user automatic telegraph exchange or as a user system communicating information on the basis of its own data bank or bank of a large electronic digital computer with which it can communicate as a terminal.

#### Utilization of the BIST System

Within the BIST system network and subnetworks can be formed, applicable to the specific requirements of the user, without the need for assignment of special circuits for this purpose. The BIST system makes it possible to utilize a telex network teleprinter as a terminal, with the aid of which one can connect through the telex network to any IT terminal. IT terminals can be formed, backed up by any type of minicomputer. The main emphasis in the BIST system, however, is placed on utilization of hardware of Polish manufacture. The BIST system does not exclude the possibility of forming separate remote computerized information networks, ministry and others, for example, but seriously compels one to analyze the effectiveness of such an undertaking, taking into consideration this system's utilization possibilities.

The BIST system makes it possible to form a multilevel network structure with a differentiated degree of organization and realization hardware and techniques.

Programmed IT terminals based on mini-computer hardware, primarily of Polish manufacture, constitute the basic technical equipment of the BIST system. These terminals permit direct communication between user telex terminals, computers and microcomputers, which in turn creates the requisite technical conditions for forming remote computerized information networks and subnetworks for various applications: efficient management in the national economy, seat reservations in transportation, management of stocks and materials management, management of geographically dispersed warehouses, management of transport, management of purchase and distribution of market goods, etc.

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## BRIEFS

**FIBER-OPTICS TELEVISION DEVELOPMENT**--A team of scientists from the Institute for Applied Physics of the Military Technical Academy is foremost in regard to developing elements for control and modulation of light. The team headed by Commodore Mieczyslaw Szustakowski recently designed the first Polish fiber-optic link for transmitting a television image. All elements of the 700-meter transmission channel are being produced exclusively in Poland. The scientists intend to prove that they can successfully replace conventional links with optic links. The military scientists also intend to show the technicians, who are handling the transmission problems, that the application of optic links, especially in transmission vehicles in which there is strong interference, will provide the capability of avoiding many current difficulties and installing these links in places where the use of cables is definitely impossible. Commodore Szustakowski and his team of scientists are working on integrated optics which provide for the transition from large optic elements to those elements having, for example, a surface dimension of 10 by 10 cm, on which an entire optic channel may be established; in conventional optics, this would have a length of approximately 2 to 3 meters. [Excerpts] [Warsaw ZOLNIERZ WOLNOSCI in Polish 29 Jan 80 p 3]

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## YUGOSLAVIA

### RADIO YUGOSLAVIA PLANS EXPANSION, MODERNIZATION

AU072120 Belgrade BORBA in Serbo-Croatian 5 Feb 80 p 11 AU

[Article by D. Simic: "Radio Yugoslavia Day: In the Service of Truth"]

[Summary] Currently Radio Yugoslavia is celebrating the second anniversary of its formation and the 35th anniversary of Yugoslavia's foreign broadcasting. The tasks of Radio Yugoslavia are constantly increasing as a result of our country's greater international assertiveness and the growth of its reputation in the world in general and especially in the nonaligned movement. Consequently within the next 3 years Radio Yugoslavia plans to build "a new, modern broadcast center with four 500-kilowatt transmitters and a large antenna system that will make possible a regular and far better reception of its programs within a range of 4,000 to 6,000 kilometers. In this manner its transmitters' power will be increased tenfold and will be able to reach all those regions in the world that are of interest to Yugoslavia and make possible more stable and effective contact with the nonaligned and developing countries."

Following completion of the modernization and expansion program, "Radio Yugoslavia will increase the number of its programs in the languages in which it currently broadcasts, that is, in English, French, Russian, Spanish, Arabic, German, Albanian, Bulgarian and Greek, and also introduce new programs in some languages in which it does not broadcast at present."

In celebration of the 35th anniversary of Yugoslav Radio's foreign broadcasts during the current month Radio Yugoslavia "will also introduce regular programs broadcast in the languages of the Yugoslav peoples and nationalities" and during the current year "a VHF transmitter will be added to the Radio Yugoslavia broadcast system and thus the Radio Yugoslavia broadcasts in foreign languages will be heard in Belgrade and its surroundings also."

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## INTER-AMERICAN AFFAIRS

### BRIEFS

BOLIVIA-ARGENTINA MICROWAVE--Argentina has signed an agreement with Bolivia for the installation of microwave equipment in that country which will link the telecommunications networks of the two countries. Thus Argentina will become the first Latin American country to export telecommunication systems. [PY081144 Buenos Aires LATIN in Spanish 1641 GMT 7 Feb 80 PY]

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## DENMARK

### JUTLAND MARINE RADIO STATION TO MODERNIZE, EXPAND SERVICE

Copenhagen BERLINGSKE TIDENDE in Danish 6 Jan 80 pt II p 3

[Commentary by Niels S. Overgaard]

[Text] "Your support was wonderful. Greetings to you from the grateful wives of four fishermen in Esbjerg."

"Thank you so very much. We appreciate your tireless efforts in connection with the rescue operation."

These are two excerpts from a collection of letters received by Bluewater Radio. Denmark's westernmost radio station has repeatedly helped save lives of people in danger on the North Sea.

And now the safety aspect has become even greater for all who travel the Atlantic Ocean--fishermen as well as seamen and all who travel by ship; Bluewater Radio now has new equipment, which makes it Europe's most up-to-date marine radio station.

The new equipment is rather advanced. There has been significant progress since 1938, when the Danish film "Bluewater Reports Storm" was first shown.

"At that time it was somewhat of a sensation when skipper Osvald Helmuth could contact his wife on shore from the pilothouse. The film came out shortly after the station had started to communicate by radio," said assistant station manager Knud Erik Hesselholt. He was impressed by the film as a young boy and got a job with the radio station 10 years later.

#### Some 169 Lives Saved

Bluewater Radio has been involved in several rescue operations. One of the greatest of these was when a fire developed aboard the Norwegian passenger ship "Blenheim" more than 250 km west of White Sands. Some 169 lives were saved because the officers on board quickly got in touch with the radio station, which, in turn, started a gigantic rescue operation.

With its high towers, Bluewater Radio can reach ships anywhere on the North Sea.

"Our foremost responsibility is to be a rescue station," Hesselholt continued, "we are the initial contact for a ship in distress. We, in turn, signal for help from the Marine Defense Operative Command and air force helicopters."

In absolute emergency situations the station interrupts regular communications.

"We also have two 3-minute periods every hour which are reserved for emergency only. These periods of silence were scheduled to allow emergency signals a better chance to get through. A ship that has already received a "blow" often has problems with its radio equipment too, not working at top capacity. Hence, they have been given every opportunity to get in touch with us and there can be no interference during the specified periods," explained Hesselholt.

#### Speakers Everywhere

Bluewater Radio personnel listens to international distress frequencies 24 hours a day. The night watchman is on duty even when he is in the restroom, since there are speakers here too which are tuned to the channels in question. Bluewater Radio is not only contacted when a ship is in danger of sinking. "We are also contacted when a ship develops engine failure, for instance, and we then call for a rescue ship to tow it into harbor. We have also been involved in a number of cases where a person aboard ship is injured and must be transported to land immediately by helicopter."

"Emergency situations are our primary concern and one might say we handle other communications during the long intervals that fortunately occur between such situations. It can be a fisherman calling home to tell the family all is well in spite of the storm. Or it can be a freighter telling the shipping company when it expects to dock. We also handle messages from the oil drilling platforms in the North Sea," said Hesselholt.

The oil company now has its own channel and the ocean floor drilling has increased the number of calls the station handles. It takes care of approximately 400 to 500 calls a day and about 100 telegrams.

"The steadily increasing number of calls was one reason we installed the new equipment," said the assistant manager. "When our offices became crowded, we got permission to expand and modernize the radio station."

Last fall about 30 employees moved into the new offices to make use of the new equipment. The modernization cost approximately 11 million kroner.

"We Are Doing Fine"

Bluewater Radio can be contacted in several ways. "UHF is one of our systems. It requires less equipment aboard ship, but does not reach very far either. UHF is similar to the car radio system.

We are also using a medium frequency radio wave which reaches farther. We also wire messages using Morse code and can dispatch messages throughout the world via our teleprinters and "telex."

The small radio station on the windy promontory of Jutland has contact with the entire globe, but primarily with ships on the Atlantic Ocean. Many fishermen and seamen can tell you how comforting it is to hear this voice over the speaker:

"This is Bluewater Radio. This is Bluewater Radio. Who is calling..."

8952

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## DENMARK

### DANRING'S 'DIGICOM' SYSTEM AROUSES INTEREST

Copenhagen BERLINGSKE TIDENDE in Danish 7 Jan 80 p 11

[Commentary by Lisbeth Nebelong]

[Text] In 6 months Danring Inc., a small firm in Valby, will begin marketing an advanced communications system which transmits sound, pictures and data.

The system was developed by civil engineer Axel Olsen, a company department head. The name of the system is "Digicom" and the company hopes it will become a permanent fixture in both private and public offices.

#### Modular Construction

Digicom can handle practically all types of communication. It is a modular system so that a company can purchase any number of modules, depending on the need. For instance, you could buy just the communications equipment or just the data equipment, or both by hooking together a data screen, a speaker and a telephone keyboard.

If you want a complete communications system, you can add word processing systems, storage control or the like, i.e. remote copying. This means that a company does not have to invest too much money to start with and that its employees can gradually get used to "the office of the future."

With Digicom, Danring has solved many companies' problems of trying to coordinate different systems. First of all, the system is designed for internal communications, but it can also be hooked up to the Scandinavian data network, which will open next year and provide external communications between businesses and organizations. But even as an internal system, it will greatly reduce the daily work within a business, according to Axel Olsen.

"You can be in separate offices within one business and by the same televised data on the screen while discussing it on the telephone. As you expand the system, it will replace practically all of the paperwork. It will also save many of the fruitless calls to people who are either busy on the

telephone or not in the office. The equipment is outfitted with different buttons. For instance, there is a "not in" and a "call back" button, which will automatically ring a party as soon as the line is free," said Axel Olsen.

#### Interest Aroused in Advance

There was great interest in the system at a telecommunications exhibit in Geneva last September. At the end of this month Axel Olsen will visit the United States and France to check out marketing and licensing possibilities there.

But Danring is not only concerned about the export market. There are numerous possibilities in Denmark, according to Axel Olsen. Basically, all companies that are interested in replacing their present communications system with a more advanced model are potential customers. There are also numerous possibilities as far as the government is concerned. According to Axel Olsen, telephone companies have already inquired about the product.

#### Development Aid

"It has already cost Danring about one million kroner to develop the system. But the money, made available through grants and loans, now appears to have been a good investment," said Axel Olsen.

Danring, which has 30 employees and annual sales of 15 million kroner from cash registers and microfilm equipment, among other things, considers Digicom to be somewhat of a revolution. It is estimated that Digicom will bring in 3 million kroner in a 6-month period, from the time it is first marketed in June till the end of the year.

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## FINLAND

### NEW FIRM, TELETIETO OY, TO START TELSET OPERATIONS

Helsinki HELSINGIN SANOMAT in Finnish 11 Jan 80 p 20

[Text] Telset system, also called TV-screen magazine, is establishing itself permanently and starting operations in earnest in the Helsinki area. The purpose of the new company named Teletieto Oy is to distribute information to both private individuals and business enterprises via telephone cables. The viewing is possible both on TV-screens and at a video terminal.

Telset system has been developed and experimented on since 1978 by Helsinki Telephone Company, Nokia Oy and Sanoma Oy. These three are also the shareholders on equal basis of the newly founded company. The basic capital is 1.2 million marks.

The companies consider the experimental results so promising that permanent operations can be started. There are already 50 to 60 customers involved at the experimental stage. In addition to the Telset editorial office, information for the system has been produced by the Central Bureau of Statistics, the Helsinki municipality, the Gallup of Finland, the State Technical Research Center and Kansallispankki.

The Sanoma Oy director of planning, Jaakko Hannuksela says it is expected that these same producers of information will remain with the company in the future.

Mr Hannuksela's conservative estimate is that there might be about 200 customers by the end of the year. In the early stages, Telset is generating more entrepreneurial than private interest, but long-range forecasts show other tendencies.

According to an EEC study for instance, the biggest part--over 95 percent--of the EEC area's receivers would already be placed in homes by 1995.

The EEC area is estimated to have by that time over 32 million receivers. Viewing expenses would be 23 billion marks altogether. This would mean approximately 730 marks a year on an average per viewer. Hannuksela thinks that the costs for a Finnish Telset-viewer would be approximately the same.

## Over 10,000 Frames of Information in Telset

The Telset system information is stored in a computer that can be contacted by telephone. The telephone has to be equipped with a modeme that makes possible the transfer of the information to the TV screen. The TV set has an inbuilt Telset auxiliary device. The cost of such a TV set is about 7000 marks.

So far, the Telset experiment holds 7000 frames in the open viewing system and 3000 frames for private use by individual enterprises or institutions.

The specific function of the Teletieto Oy firm is to maintain the computer equipment that is required by the information service. Independent producers of information, such as for instance the Telset editorial office, may reserve space for their information in the system. They also are themselves responsible for this information, which either can be available for all or reserved for the private use of each producer.

The Telset editorial office produces for the system such items as news, household information, economic information, different kinds of indexes, time tables, et cetera.

Teletieto Oy is the second system of this type established in Europe. The first one saw the light of day in England last summer. The system in England is maintained by the Postal Service. However, there are similar experiments with information services conducted for instance in West Germany, Sweden and Norway.

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**TDF DISAPPEARS, MADE PART OF PTT**

Paris ZERO UN INFORMATIQUE HEBDO in French 21 Jan 80 p 24

[Article: "TDF Made Part of PTT"]

[Text] With its 3,400 salaried employees and a budget of 1.3 billion francs for 1980, TDF [French Television] has been entrusted with four missions in September 1974, after the breaking down of ORTF [Office of French Broadcasting and Television]:

- to ensure the broadcasting of the programs (i.e. maintaining, operating and protecting the network);
- to pursue research on materials and techniques (and define standards);
- to maintain relations with international organizations, in cooperation with various government departments and with the producing companies;
- to provide service and technical assistance to the three channels and to foreign clients.

The P&T [Postal and Telecommunications Administration] becomes again the PTT, according to a decision of the Council of Ministers dated January 16. But this time, PTT no longer means, as it used to, Postal, Telegraph and Telephone Administration, but Postal, Telecommunications and Television Administration. The secretariat of state, therefore, is building up its name--it was even thought that it would pull itself up to the rank of a ministry--after building up its attributions.

Last week also, the weekly Council of Ministers made public the transfer of responsibility for TDF from the ministry of culture and environment to the secretariat of state to P&T.

Apparently, not much is changed; besides, the official statement stressed continuity: no changes in the by-laws of TDF, nor in regulations concerning its personnel.

In fact, its status as a public establishment, determined by the law of 7 August 1974, provides its personnel--among other things--with salaries higher than those of civil servants. The personnel value this privilege, but Norbert Segard, secretary of state to the PTT, will have difficulties in having it accepted by the telecommunications people with whom TDF will now have to work closely.

This transfer of responsibility, in fact, is merely the logical consequence of the progress of teleprocessing (the union of computer, television and telephone, as everyone knows) and of the development of satellites which can transmit TV programs directly to the viewer (Franco-German direct TV satellite) or videoconferences, or computer data (Telecom I).

Besides, this is not the first pas de deux which P&T and television are dancing together: until 1958, the RTF [French Broadcasting and Television] belonged in the fold on Avenue de Segur; then--in order not to cut all ties--the CCETT [Common Center for Telecommunications and Television Studies] was created in Rennes.

There it was that Antiope, a system for the broadcasting of data on a screen using a wireless beam, and its brother Teletel, using telephone lines and making a dialogue possible, were born.

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## PORTUGAL

### BRIEFS

STATE-OWNED MEDIA ADMINISTRATION--The media were again in the news yesterday, following the release of a note by the secretariat of state for social communication. The note confirmed the closure of the newspaper O SECULO, the establishment of a school of journalism, the transfer of the secretariat of state for social communication to the premises of O SECULO as well as the introduction of a new law on radio broadcasting and the dismissal and appointment of new administrators for the state-owned media. Late yesterday morning the government released another note announcing the following appointments in the media: Dr Jorge Manuel Pereira Tadeu was appointed chairman of DIARIO POPULAR; Dr Vitor Cunha Rego was appointed chairman of Portuguese television; Dr Jao Barreiros Cardoso was appointed chairman of Radiodifusao Portuguesa; Engineer Tito de Moraes was to remain chairman of the Portuguese News Agency ANOP, but his resignation was announced yesterday evening; Dr Jose da Silva Macedo e Cunha was appointed chairman of the state-owned publishing house Noticias-Capital. All these appointments are still provisional. Their confirmation depends on the opinion of the mass media advisory councils for RTP, RDP, ANOP and the press. [Excerpts] [LD090246 Lisbon Domestic Service in Portuguese 0001 GMT 9 Feb 80 LD]

CURB ON MEDIA FREEDOM--The Socialist Party tonight released a note challenging the appointment by the government of new administrators for the state-owned media. The note states in part: The government had promised a change and concerning the media, the meaning of this change is now quite clear: It means the curbing of freedom in news reporting in Portugal. [Text] [LD090248 Lisbon Domestic Service in Portuguese 2330 GMT 8 Feb 80 LD]

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